

Brooding of juveniles and observations on dispersal of young in the spider crab *Paranaxia serpulifera* (Guérin) (Decapoda, Brachyura, Majidae) from Western Australia

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Abstract

Aspects of the eggs, brooding behaviour and juvenile dispersal of *Paranaxia serpulifera* (Guérin) are described. Observed females carried in excess of 1000 large eggs, the highest recorded fecundity for a direct developing marine brachyuran. Most juveniles leaving the brood chamber dispersed over the posterior carapace and pereopods of the mother. Juveniles unattached to the mother and on an exposed substrate formed dense aggregations but dispersed when shelter was provided. Juveniles displayed decorating behaviour.

Introduction

Direct (epimorphic) development is uncommon in the Decapoda and very rare in the Brachyura (Williamson 1982). The terms 'abbreviated development' and 'direct development' have been accorded a variety of meanings in the scientific literature (Rabalais and Gore 1985) and are here employed as defined by Gore (1985: 21). The freshwater potamoid crabs and at least one freshwater member of the Hymenosomatidae display direct development and several species of terrestrial Grapsidae have very abbreviated development (Rabalais and Gore 1985), but there are few recorded marine examples. Table 1 summarises aspects of fecundity and hatching in known and possible examples of direct development in marine crabs. All of these species occur in Australian or New Zealand waters. In addition, Kurata (1970) noted direct development in an unidentified species of *Pinnotheres* (Pinnotheridae). Marine Brachyura with very abbreviated, or 'advanced', development as defined by Gore (1985: 23) are not included in the table (see Rabalais and Gore 1985: 82-85).

Of the family Majidae, only *Paranaxia serpulifera* (Guérin) has been recorded as having direct development (Rathbun 1914). This moderately large crab occurs from south-western Australia near Perth northward and eastward to northern Queensland, in depths ranging from the intertidal to approximately 30 m. Rathbun (1914) described and illustrated two stages of juvenile taken from the brood

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